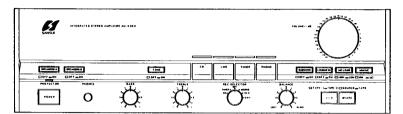


SERVICE MANUAL

AU-X2012

INTEGRATED STEREO AMPLIFIER



CAUTION

1. Parts identified by the A symbol on the schematic diagram and the parts list are critical for safety.

Use only replacement parts that have critical characteristics recommended by the manufacturer.

2. Make leakage-current or resistance measurements to determine that exposed parts are acceptably insulated from the supply circuit before returning the appliance to the customer.

SPECIFICATIONS_

<AU-X201i>

Power output

30 watts per channel into 1 kHz, 8 ohms.

DIN

60 watts per channel into 4 ohms.

Load impedance...... 4 to 16 ohms

Total harmonic distortion less than 0.05% at or

below rated min. RMS, both

channels driven, from 20

to 20,000 Hz.

Intermodulation distortion

(60 Hz: 7 kHz = 4:1 SMPTE method)

.....less than 0.05% at rated

power output

Frequency response (at 1 watt)

Overall (from CD)...... 1 to 100,000 Hz, +0 dB

-3 dB

RIAA curve deviation (PHONO, 20 Hz to 20 kHz)

..... +0.5 dB, -0.5 dB

Input sensitivity and impedance (at 1 kHz)

PHONO (MM)...... 3.5 mV/47 kohms (Max. input capability: 150 mV at 1 kHz, less that

0.1% total harmonic distortion)

CD, TUNER, LINE...... 200 mV/47 kohms TAPE PLAY-1, 2 200 mV/47 kohms

Output level (at 1 kHz)

TAPE REC-1, 2 200 mV into 47 kohms

Signal to noise ratio (short-circuit, A-network)

PHONO (MM)..... 75 dB CD, TUNER, LINE...... 105 dB

TAPE PLAY-1, 2 105 dB

Controls and Filter

BASS ±8 dB at 50 Hz TREBLE..... ±8 dB at 10 kHz

SUBSONIC —3 dB at 16 Hz (6 dB/oct)

LOUDNESS +8 dB at 50 Hz

(VOLUME: -30 dB

position) +4 dB at 10 kHz

Power requirements AC 120V/220V/240V,

50/60 Hz

For U.S.A. & Canada .. AC 120V, 60 Hz

Power consumption 200 watts

310 watts Maximum Dimensi hs 430 mm (16-15/16") W 136 mm (5-3/8") H 311 mm (12-1/4") D

Weight. 7.0 kg (15.4 lbs) net 9.0 kg (19.8 lbs) packed

Design and specifications subject to changes without notice for improvements.

Due to local laws and regulations, this unit sold in some areas are not

equipped with variable voltage selectors

•SPECIFICATIONS_

<AU-X301i>

Power output

Min. RMS, both channels driven, from 20 to 20,000 Hz, with no more than 0.05% total harmonic distortion.

65 watts per channel into 8 ohms.

100 watts per channel into 4 ohms. Load impedance...... 4 to 16 ohms

Total harmonic distortion less than 0.05% at or below rated min. RMS

power output

Intermodulation distortion

(60 Hz: 7 kHz = 4:1 SMPTE method)

......less than 0.05% at rated

power output

Frequency response (at 1 watt)

Overall (from CD)...... 1 to 150,000 Hz, +0 dB

-3 dB

RIAA curve deviation (PHONO-MM, 20 Hz to 20 kHz)

.....+0.5 dB, -0.5 dB

Input sensitivity and impedance (at 1 kHz)

PHONO (MC)............. 420 μ V/100 or 22 ohms

PHONO (MM)...... 3.5 mV/47 kohms (Max. input capability: 150 mV at 1 kHz, less than

0.1% total harmonic distortion)

CD, TUNER, LINE...... 200 mV/47 kohms

TAPE PLAY-1, 2 200 mV/47 kohms

Output level (at 1 kHz)

TAPE REC-1, 2 200 mV into 47 kohms

Signal to noise ratio (short-circuit, A-network)

PHONO (MC)..... 65 dB

PHONO (MM)...... 80 dB

CD, TUNER, LINE..... 105 dB TAPE PLAY-1, 2 105 dB

Controls and Filter

BASS ±8 dB at 50 Hz

TREBLE..... ±8 dB at 10 kHz

SUBSONIC —3 dB at 16 Hz (6 dB/oct)

LOUDNESS +8 dB at 50 Hz

(VOLUME: -30 dB

position)

+4 dB at 10 kHz

Power requirements AC 120V/220V/240V,

50/60 Hz

For U.S.A. & Canada .. AC 120V, 60 Hz

Power consumption 330 watts 410 VA Rated

460 watts Maximum Dimensions 430 mm (16-15/16") W

136 mm (5-3/8") H

311 mm (12-1/4") D

Weight 9.5 kg (20.9 lbs) net

11.0 kg (24.3 lbs) packed

Design and specifications subject to changes without notice for improvements.

Due to local laws and regulations, this unit sold in some areas are not equipped with variable voltage selectors.

NOTE -

1. The symbols, EU, EG, SEV, SS and XX < EXPORT > on the parts list and the schematic diagram mean followings respectively.

EU Manufactured for European market.

EG Manufactured for F.R. Germany market.

SEV Manufactured for Swiss Market.

SS...... Manufactured for Saudi Arabia Market.

XX < EXPORT > Standard Version.

NON MARK Common Parts.

- 2. Some printed circuit boards are not supplied assembled. To separate these in this service manual, the stock numbers are not indicated for these boards. However, stock numbers for individual parts are indicated.
- 3. Since some capacitors and resistors are omitted from parts lists in this service manual, refer to the Common Parts List for capacitors and resistors, which was issued on March 1987.
- 4. Abbreviations in this service manual are as follows.

Abbreviations List

CR · Carbon Resistor E.B.L. : Low Leak Bi-Polar S.R. : Solid Resistor Electrolytic Capacitor Ce.R. : Cement Resistor Ta.C. : Tantalum Capacitor

M.R. : Metal Film Resistor F.C. Film Capacitor F.R. **Fusing Resistor** M.P. Metalized Paper Capacitor

: Non-Inflammable Resistor N.I.R. P.C. : Polystyrene Capacitor : Array Resistor M.M.C.: Metalized Mylar Capacitor A.R.

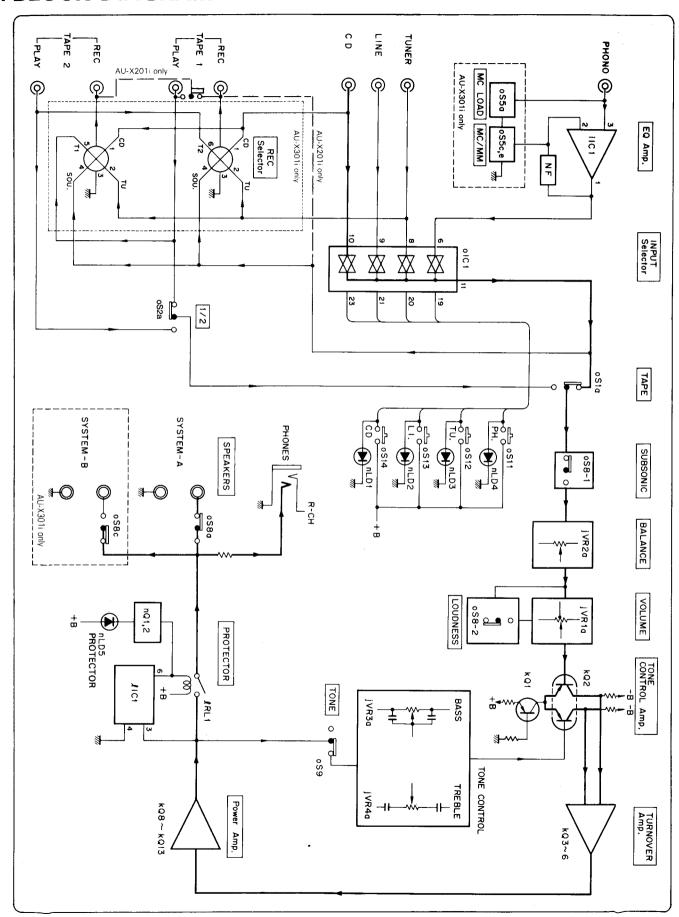
: Ceramic Capacitor : Array Capacitor C.C. A.C. C.T. : Ceramic Capacitor, V.R. : Variable Resistor Temperature Compensation S.V.R. : Semi Variable Resistor

E.C. : Electrolytic Capacitor €w. Switch : Low Leak Electrolytic E.L. Chip R.: Chip Resistor Chip C.: Chip Capacitor Capacitor

: Bi-Polar Electrolytic E.B.

Capacitor

1. BLOCK DIAGRAM



2. ELECTRIC PARTS LIST OF BOARD

2-1. F-5716 Tone Control V.R. Board

<Stock No. 01049601 = AU-X201i/01048501 = AU-X301i>

Parts No.	Stock No.	Description	
jC1	48103000	0.22μF 50V E.B.	
jC5	48103000	0.22μF 50V E.B.	
jVR1	83005400	150kΩ (B) V.R., VOLUME	
jVR2	83003200	250KMN V.R., BALANCE	
jVR3	83003100	50kΩ (C) V.R., BASS	
jVR4	83003100	50 k Ω (C) V.R., TREBLE	
nLD1	48849300	SEL3913K, CD	
nLD2	48849300	SEL3913K, LINE	
nLD3	48849300	SEL3913K, TUNER	
nLD4	48849300	SEL3913K, PHONO	
oS1	48837500	Push SW., TAPE	
oS2	48837500	Push SW., 1/2 (AU-X301i)	
	48837300	Push SW., 1/2 (AU-X201i)	
oS8	83032000	Push SW.,	
		SUBSONIC·LOUDNESS	
oS9	83002800	Push SW., TONE	

2-2. F-5718 PROTECTOR Ind. Board

Parts No.	Stock No.	Description	
nLD5	48866300	AY2222S	

2-3. F-5719 PHONES Jack Board

Parts No.	Stock No.	Description	
oJ1	83002600	Jack	

2-4. F-5720 SPEAKERS Switch Board

Parts No.	Stock No.	Description
ΔkR35 Δ	46624700 46249700	220Ω 2W N.I.R. (AU-X301i) 220Ω 1W N.I.R. (AU-X201i)
oS7	83032900 83032800	Push SW., SPEAKERS (AU-X301i) Push SW., SPEAKERS (AU-X201i)

2-5. F-5721 SPEAKERS Terminal Board (AU-X301i)

Parts No.	Stock No.	Description	
oZ4	48569100	8P Terminal, Speaker	_

2-6. F-5723 SPEAKERS Terminal Board (AU-X201i)

Parts No.	Stock No.	Description
oZ4	48699700	4P Terminal, Speaker

2-7. F-5717 Power Amp. Board

<Stock No. 01049701 = AU-X201i/01048601 = AU-X301i>

< 5	<stock 01049701="AU-X201i/01048601" =="" au-x301i<="" no.="" th=""></stock>			
Parts No.	Stock No.	Description		
Transistor				
kQ1	07299601	2SA1115		
1.00	or 46392201	2SA1175		
kQ2	48577701	2SA1349		
kQ3	46728301 or 48113001	2SC2705		
kQ4	46728301	2SC2229 2SC2705		
KQ4	or 48113001	2SC2229		
kQ5	03064001	2SC1904		
	or 46128101	2SC2911		
kQ6	03007901	2SA899		
	or 46128001	2SA1209		
∆ kQ7	03067401	2SC1845		
kQ8	48061801	2SC3244		
kQ9	48064001	2SA1284		
kQ10	46728901 or 48158701	2SC3298 (AU-X301i)		
	07206401	2SC2591 (AU-X301i) 2SD600K (AU-X201i)		
kQ11	46728801	2SA1306 (AU-X301i)		
	or 48158601	2SA1111 (AU-X301i)		
	07206301	2SB631K (AU-X201i)		
∆ kQ12	48844201	2SC3856 (AU-X301i)		
Δ	48844401	2SC3854 (AU-X201i)		
∆ kQ13	48844101	2SA1492 (AU-X301i)		
Δ	48844301	2SA1490 (AU-X201i)		
•Diode				
kD1	83000100	1N4148		
KD .	00000100			
∆ kR13	46230200	1kΩ 1/2W N.I.R. (AU-X301i)		
\triangle	46229800	470Ω 1/2W N.I.R. (AU-X201i)		
∆kR14	46229100	120 Ω 1/2W N.I.R. (AU-X301i)		
∆	46228700	56Ω 1/2W N.I.R. (AU-X201i)		
∆ kR15	46230200	1kΩ 1/2W N.I.R. (AU-X301i)		
<u>^</u> kR16	46229800 46230200	470Ω 1/2W N.I.R. (AU-X201i) 1kΩ 1/2W N.I.R. (AU-X301i)		
∆	46229800	470 Ω 1/2W N.I.R. (AU-X3011)		
ΔkR17	46230200	1kΩ 1/2W N.I.R. (AU-X301i)		
\triangle	46229800	470 Ω 1/2W N.I.R. (AU-X201i)		
∆ kR18	46229100	120Ω 1/2W N.I.R. (AU-X301i)		
\triangle	46228700	56 Ω 1/2W N.I.R. (AU-X201i)		
∆kR22	46228200	33 Ω 1/2W N.I.R.		
∆kR23	46228200	33 Ω 1/2W N.I.R.		
ΔkR28	46230200	1kΩ 1/2W N.I.R.		
ΔkR29 ΔkR30	46229100 46227400	120Ω 1/2W N.I.R.		
∆ kR31	46227400	4.7 Ω 1/2W N.I.R. 4.7 Ω 1/2W N.I.R.		
∆ kR32	83013200	0.22 Ω 5W Ce.R.		
∆ kR33	46623100	10Ω 2W N.I.R. (AU-X301i)		
Δ	46248100	10Ω 1W N.I.R. (AU-X201i)		
∆ kR34	46247300	2.2 Ω 1W N.I.R. (AU-X301i)		
A	46227000	2.2Ω 1/2W N.I.R. (AU-X201i)		
∆ kR38	83013200	0.22 Ω 5W Ce.R.		
kL1	830201i00	Indicator C C III		
KL I	030201100	Inductor 0.8μH		
kVR1	83006900	1k Ω S.V.R., Bias		
_				
•Transistor				
IQ1	46581701	2SC1845 (AU-X301i)		
IQ2	46581601	2SA992 (AU-X301i)		
•IC				
ΔIIC1	46207600	TA7317P		
	.520,000			
Diode				
ID1	83000100	1N4148 (AU-X301i)		
ID2	83000100	1N4148 (AU-X301i)		
ID3	83024700	1N4003		

Parts List <F-5717>

Parts No.	Stock No.	Description
ID4 ID5	83024700 83005000	1N4003 1N4002
∆ IR18 ∆	46229900 46229500	560 Ω 1/2W N.I.R. (AU-X301i) 270 Ω 1/2W N.I.R. (AU-X201i)
IC5	48104200	220μF 6.3V E.B.
IRL1	46254900	Relay, AP24D2
•Transistor nQ1 nQ2	03067401 03067401	2SC1845 2SC1845
• Diode nD1	83000100	1N4148

2-8. F-5722 Power Supply Board < Stock No. 01050201= AU-X201i/01049101 = AU-X301i/</pre>

< <u>S</u>	< Stock No. 01050201 = AU-X201i/01049101 = AU-X301		
Parts No.	Stock No.	Description	
•Transistor ⚠mQ1 ॒MmQ2	48061801 48064001	2SC3244 (AU-X301i) 2SA1284 (AU-X301i)	
•Diode ⚠mD1 ⚠ ॒mD2	83002000 83002100 83020200	KBU6D (AU-X301i) KBU4D (AU-X201i) DF04M	
•Zener Diode mDZ1	46114400 or 46114500 or 46114600 or 46828000 or 46828100 or 03170800 46114400 or 46114500 or 46114600 or 46828000 or 46828100 or 03170800	05Z15-X 05Z15-Y 05Z15-Z RD15E-B1 RD15E-B2 RD15F (AU-X201i) 05Z15-X 05Z15-Z RD15E-B1 RD15E-B1 RD15E-B2 RD15F (AU-X201i)	
MR12 mC1 mC2 mC11 mC12	46623100 48913300 48913400 48913300 48913400 08680400 08680400	10Ω 2W N.I.R. 8200μF 63V E.C. (AU-X301i) 6800μF 42V E.C. (AU-X201i) 8200μF 63V E.C. (AU-X301i) 6800μF 42V E.C. (AU-X201i) 0.01μF 500V C.C. 0.01μF 500V C.C.	
⚠ pC1	46425800 or 46943200	0.01µF 400V C.C. 0.01µF 400V C.C.	
ΔpF1 Δ Δ Δ Δ ΔpF2	83021900 83021600 83024000 83023600 83021900 83021600	Fuse 3A for AU-X301i (XX•SS) Fuse 1.5A for AU-X201i (SS) Fuse 3.15A for AU-X301i (EU•EG•SEV) Fuse 1.25A for AU-X201i (EU•EG•SEV) Fuse 3A for AU-X301i (XX•SS) Fuse 1.5A for AU-X201i (SS)	
A∆ A∆pS1	83023100 83023100 48844500	Fuse 400mA (SEV) Push SW., POWER	

2-9. F-5751 EQ Amp. INPUT Terminal Board < Stock No. 01050401 = AU-X201i/01049301 = AU-X301i >

Parts No.	Stock No.	Description
•IC		
iIC1	46288800	M5220L (AU-X301i)
	46147700	M5218L (AU-X201i)
oIC1	48570700	TC9152P
•Zener Diod	e	
oDZ1	46109000	05Z2.7-X
	or 46109100	05Z2.7-Y
	or 46109200	05Z2.7-Z
	or 46823000	RD2.7E-B1
	or 46823100	RD2.7E-B2
oL1	83030300	170μH Indicator
oS3	07200200	Slide SW., REC SELECTOR
		(AU-X301i)
oS5	83032100	Push SW., MM/MC•MC LOAD (AU-X301i)
oZ1	48528400	2P Terminal, PHONO
oZ3	48528600	6P Terminal, TUNER·LINE·CD

2-10. F-5753 Selector Switch Board

Parts No.	Stock No.	Description
oS11	83003000	Push SW., PHONC
oS12	83003000	Push SW., TUNER
oS13	83003000	Push SW., LINE
oS14	83003000	Push SW., CD

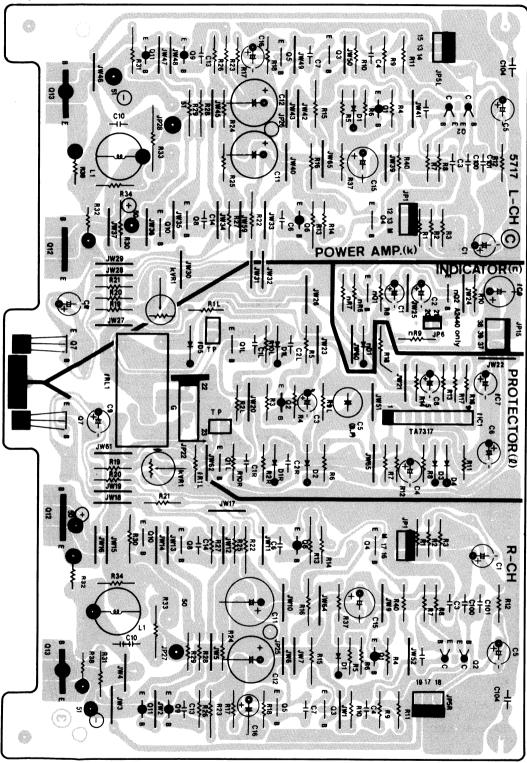
2-11. F-5752 TAPE/DAT Terminal Board

Parts No.	Stock No.	Description
oZ2	48528500	4P Terminal, TAPE/DAT

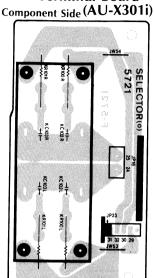
3. PARTS LOCATION OF CIRCUIT BOARD

3-1. F-5717 Power Amp. Board

Component Side

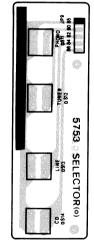


3-2. F-5721 SPEAKERS
Terminal Board



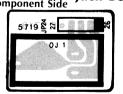
3-3. F-5753 Selector Switch Board

Component Side



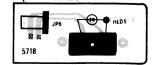
3-4. F-5719 PHONES

Component Side Jack Board



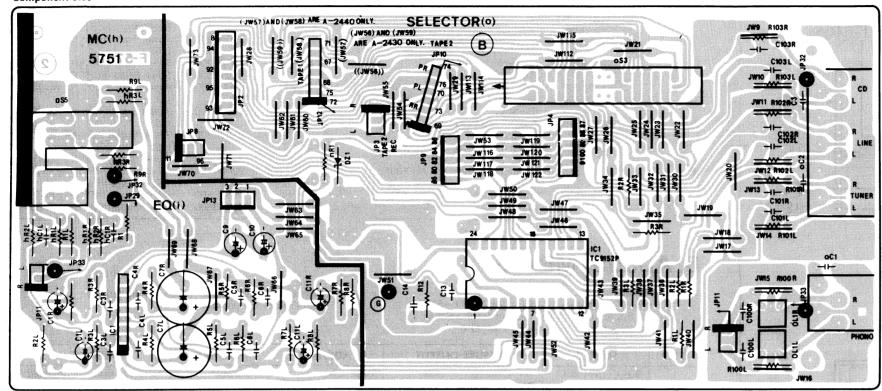
3-5. F-5718 PROTECTOR

Component Side Ind. Board

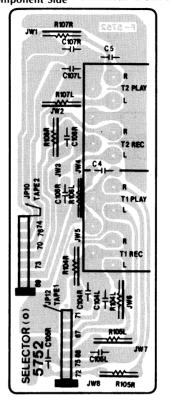


3-6. F-5751 EQ Amp. & INPUT Terminal Board

Component Side

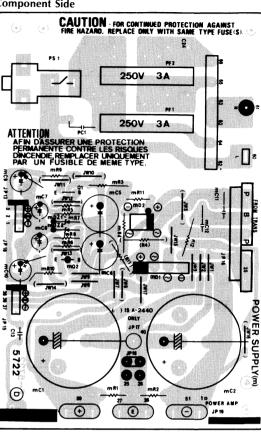


3-8. F-5752 TAPE/DAT Component Side Terminal Board



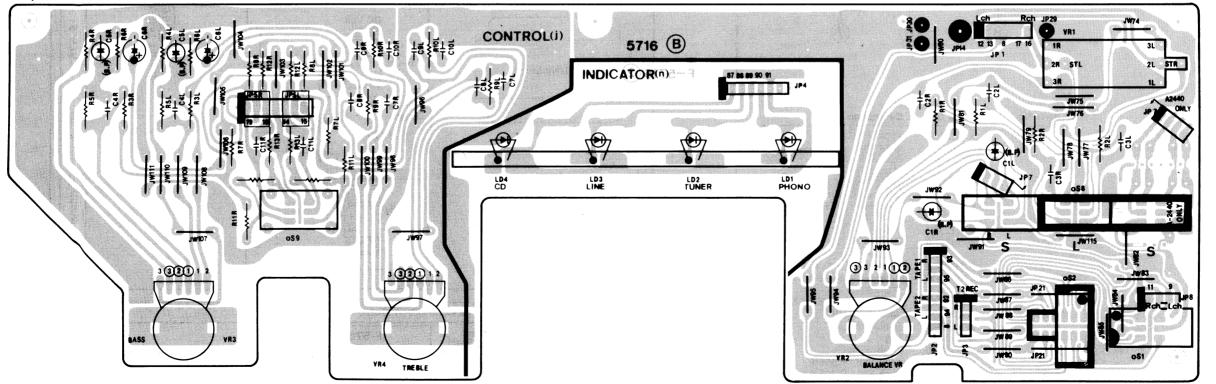
3-9. F-5722 Power Supply Board

Component Side

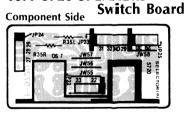


3-7. F-5716 Tone Control Volume Board

Component Side



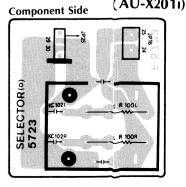
3-10. F-5720 SPEAKERS



3-11. F-5723 SPEAKERS

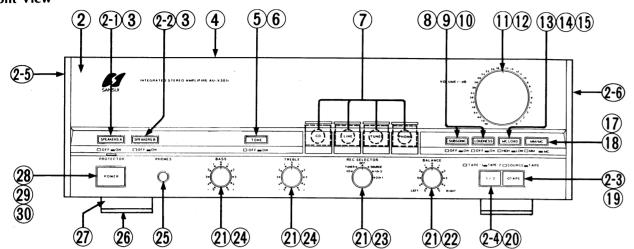
Terminal Board

Component Side (AU-X201i)

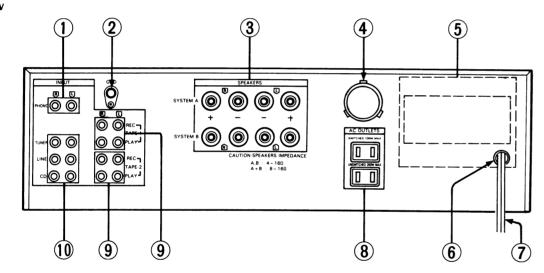


4. OTHER PARTS

• Front View



•Rear View



Parts List < Front View>

Parts No.	Stock No.	Description	
2	37503801	Front Panel Ass'y (AU-X301i)	
	37503701	Front Panel Ass'y (AU-X201i)	
2-1	84583600	Knob, SPEAKERS-A (AU-X301i)	
	84583800	Knob, SPEAKERS (AU-X201i)	
2-2	84583700	Knob, SPEAKERS-B (AU-X301i)	
2-3	84514410	Knob, TAPE	
2-4	84526100	Knob, 1/2	
2-5	84582600	Left Side Panel	
2-6	84582500	Right Side Panel	
3	83032900	Push SW., SPEAKERS (AU-X301i)	
	83032800	Push SW., SPEAKERS (AU-X201i)	
4	84527200	Bonnet	
5	84583100	Knob, TONE	
6	83002800		
7	83003000	Tact SW., PHONO•TUNER•	
		LINE•CD	
8	84583200	Knob, LOUDNESS	
9	84583300	Knob, SUBSONIC	
10	83032000	Push SW., LOUDNESS SUBSONIC	
11	84582900	Knob, VOLUME	
12	83005400	150kΩ V.R., VOLUME	

Parts No.	Stock No.	Description	
13	84583400	Knob. MC LOAD (AU-X301i)	
14	84526900	Joint Shaft, MC LOAD (AU-X301i)	
15	83032100	Push SW., MC LOAD•MM/MC (AU-X301i)	
.17	84583500	Knob, MM/MC (AU-X301i)	
18	84527000	Joint Shaft, MM/MC (AU-X301i)	
19	48837500	Push SW., TAPE	
20	48837500	Push SW., 1/2 (AU-X301i)	
	48837300	Push SW., 1/2 (AU-X201i)	
21	84583000	Knob, BALANCE•REC SELECTOR TABLE•BASS	
22	83003200	250kΩ V.R., BALANCE	
23	48837000	Rotary Selector with Flexible wire (AU-X301i)	
24	83003100	50kΩ V.R., TREBLE•BASS	
25	83002600	Jack, PHONES	
26	27593800	Rubber for Leg	
27	84586400	Lea	
28	84594300	Knob, POWER	
29	84526800	Joint Shft, POWER	
∆ 30	48844500	Push SW., POWER	

Parts List < Rear View>

Parts No.	Stock No.	Description
1	48528400	2P Terminal, PHONO
2	84528300	Ground Terminal
3	48569100	8P Terminal, SPEAKERS (AU-X301i)
	48699700	4P Terminal, SPEAKERS (AU-X201i)
∆ 4	84175200	Plug, Voltage Selector (XX+SS)
Δ	07204700	Slide SW., Voltage Selector (EU•SEV)
∆ 5	83001519	Power Transformer for AU-X301i (XX•SS)
⚠	83001508	Power Transformer for AU-X301i (EG)
⚠	83001515	Power Transformer for AU-X301i (EU•SEV)
⚠	83048509	Power Transformer for AU-X201i (SS)

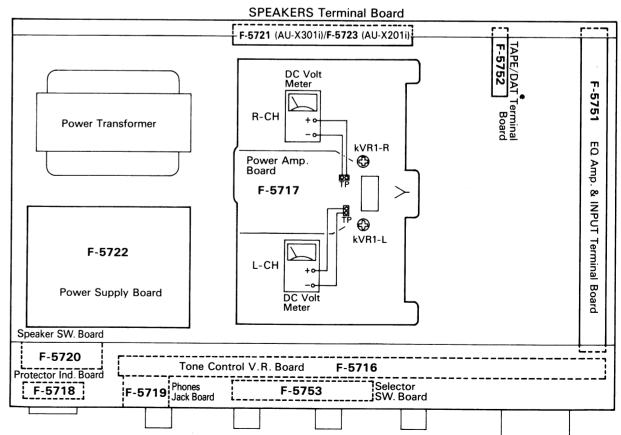
Parts No.	Stock No.	Description
A	83048505	Power Transformer for AU-X201 (EU•SEV)
A	83048508	Power Transformer for AU-X201 (EG)
6	39104900	Strain Relief (XX=AU-X301i only)
	48913500	Strain Relief (EU+SS+EG+SEV)
<u>^</u> 7	83003500	Power Supply Cord for AU-X301 (XX)
⚠	83034900	Power Supply Cord for AU-X201 (SS)
Λ	83034900	Power Supply Cord for AU-X301 (SS)
⚠	83000600	Power Sypply Cord (EU·SEV·EG)
∆ 8	83004100	AC OUTLET (XX•SS = AU-X301i/ SS = AU-X201i)
9	48528500	4P Terminal, TAPE-1.TAPE-2
10	48528600	6P Terminal, TUNER•LINE•CD

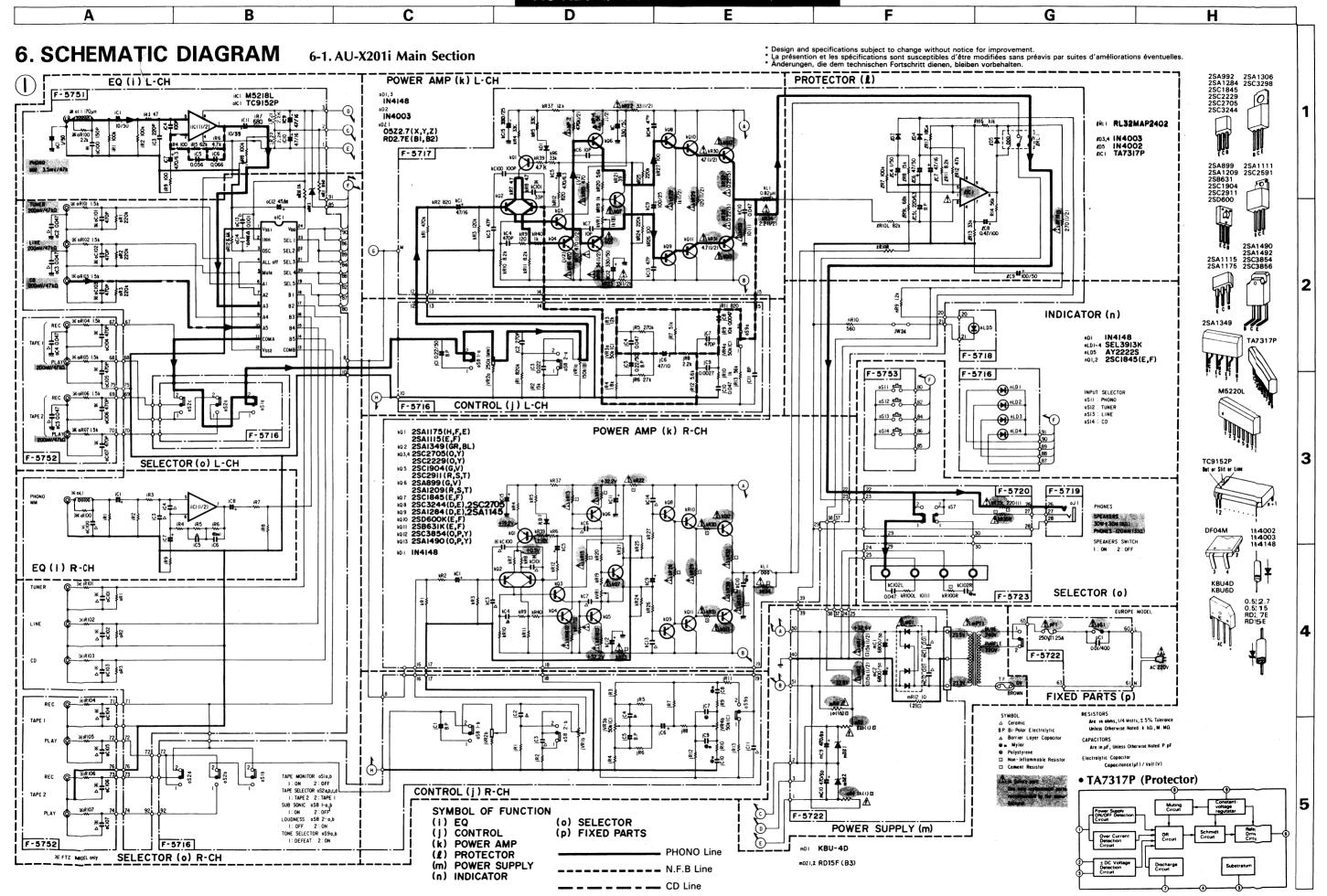
5. ADJUSTMENTS

- Note: 1) Master Volume Minimum 2) Room Temperature 18°C ~ 28°C (65°F ~ 83°F)
 - 3) For this adjustment, run the unit for more than 5 minutes after the power is switched ON.
- 4) Before turning ON power switch, set the kVR1 on F-5717 to center position.

STEP	SUBJECT	MEASURE OUTPUT	ADJUST	ADJUST FOR	REMARKS
1.	Bias Current Adj. <l-ch></l-ch>	Test Terminal (TP, L-ch), DC Volt Meter	kVR1 <l-ch></l-ch>	DC 5±2mV	This bias value is converted from current value to voltage by ohms law.
2.	Bias Current Adj. <r-ch></r-ch>	Test Terminal (TP, R-ch), DC Volt Meter	kVR1 <r-ch></r-ch>	DC 5±2mV	

Fig. 5-1 Printed Circuit Location and adjustment points.





(1) PROTECTOR (m) POWER SUPPLY

(n) INDICATOR

mq: 2SC3244(C,D,E)2SC2235

mQ2 2SA1284 (C,D,E) 2SA965

Are in µF, Unless Otherwise Noted. P: pF

Electrolytic Capacitor
Capacitance (µF) / Volt (V

mD2 DFO4M

mDZ1,2 O5ZI5(X,Y,Z) RDI5E(BI,B2)

PHONO Line

--- N.F.B Line

- - CD Line

F-5752 *FT! MODEL only

F-5716

SELECTOR (o) R-CH

1

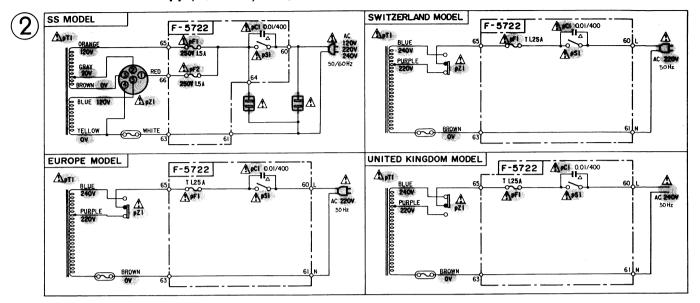
2

3

4

C

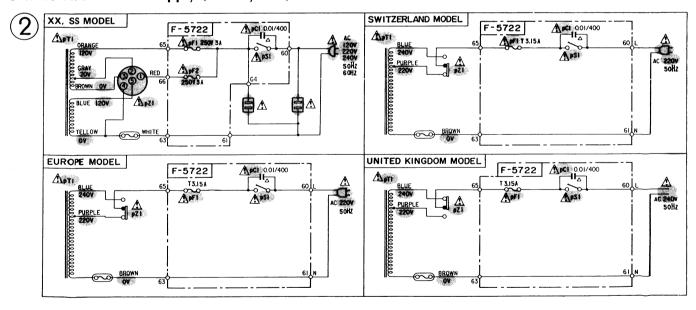
6-3. AU-X201i Power Supply (Primaly-side) Section





- Design and specifications subject to change without notice for improvement.
 La présention et les spécifications sont susceptibles d'être modifiées sans préavis par suites d'améliorations éventuelles.
 Änderungen, die dem technischen Fortschritt dienen, bleiben vorbehalten.

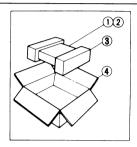
6-4. AU-X301i Power Supply (Primaly-side) Section



5

7. PACKING LIST

Parts No.	Stock No.	Description
1	47428000	Polythylene Sheet
2	47859600	Vinyl Bag
3	84527300	Styrofoam Packing
4	84589200	Carton Case (AU-X201i)
	84589100	Carton Case (AU-X301i)



8. ACCESSORY LIST

Stock	No.	Description
84454	1300	Operating Instruction (*E·F·S) < AU-X301i/X201i>
84454	400	Operating Instruction (*G·I·Sw) <au-x301i x201i=""></au-x301i>

*Note:

E•F•S: English•French and Spanish Version G•I•Sw: German•Italian and Swedish Version



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